River Mile 10.9 Removal Action Air Quality Monitoring: Proposed Monitoring During Capping Operations

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Summary

This technical memorandum presents a summary of the air samples collected as part of the EPA-approved *River Mile 10.9 Removal Action Perimeter Air Monitoring Plan, Lower Passaic River Study Area*, dated July 8, 2013 (the "PAMP"). Pursuant to the EPA-approved PAMP, air monitoring may be reduced during the capping portion of the project with EPA-approval. Given the characteristics of the RM 10.9 chemicals of potential concern (COPCs), it was expected and the air monitoring data confirmed that the RM 10.9 dredging operations were not a source of COPC air emissions. Therefore, CH2M HILL proposes a reduction in the air monitoring program during the upcoming capping operations.

This technical memorandum documents the results of air sampling results collected prior to and throughout dredging operations. Based on these data, CH2M HILL recommends a discontinuation of all COPC and volatile organic compound (VOC) monitoring during capping, and suggests that during the capping of the RM 10.9 Removal Area, only real-time, on-land monitoring of dust and H_2S occur adjacent to each day's capping operation.

Introduction

The primary objective of the PAMP is to monitor air quality and measure the quantity of COPCs associated with the dredging and capping. RM 10.9 COPCs, which include dioxins/furans and PCBs, have low vapor pressures and adhere tightly to the sediment particles, and therefore have low to negligible vapor emission potential. Moreover, VOCs were not detected in the sediment during characterization and no VOCs have been detected to date during real-time monitoring. Since the sediment is wet and remains moist throughout the dredging and capping operations, the potential for dust generation is extremely low to negligible. Notwithstanding, air sampling has been performed at the direction of EPA to ensure and verify that the dredged sediment is not a source of COPCs to the air.

As the program moves into the capping phase, there will be even less of a potential chemical transport pathway to the air as sediment is no longer being handled and will be wet or submerged. Based on the properties of the COPCs alone, air sampling is not necessary during capping. The COPC and real-time air monitoring, which showed no exceedances of air monitoring criteria attributable to dredging also indicate that monitoring is not necessary. However, as a conservative and protective measure, a modified real-time air monitoring program during capping is proposed as discussed herein.

RM 10.9 Air Monitoring Analytical Results

The air monitoring program includes both real-time and 24-hour composite sampling. The real-time monitoring data are collected every minute for particulates (dust), H_2S, and VOCs and are immediately uploaded to a web-portal where they can be viewed. The composite samples are collected over a 24-hour period to monitor for the presence of COPCs that would adhere to dust particles. These samples are being sent for expedited laboratory analysis of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (2,3,7,8-TCDD), PCB Aroclors, and Mercury.

Air samples were collected from one on-river station (IRS#1) and four park monitoring stations (PMS#1, PMS#2, PMS#3, Mobile #1 [real-time only]) as shown in Figure 1. Prior to and during dredging, 166 composite samples for COPC analysis were collected as shown in Tables 1, 2a, 2b and 2c. The 24-hour composite samples were collected from the four fixed stations (IRS#1, PMS#1, PMS#3, and PMS#3). In addition, real-time 1-minute readings were collected 24-hours per day, 7 days a week, to analyse for particulates (dust), H_2S, and VOCs. These readings were recorded both during and outside of dredging operations for comparative purposes. There were no elevated readings attributable to dredging operations for any of these parameters.

The results of the air monitoring program during dredging can be summarized as follows:

- No exceedances of real-time air indicator criteria, including the most conservative (residential) risk based action levels listed below:
  - Mercury = 2.4 micrograms per cubic meter (ug/m^3)
  - Total PCBs = 0.11 ug/m^3
  - 2,3,7,8-TCDD = 0.000024 (2.4E-05) ug/m^3
- All COPC analytical results were either non-detect or several orders of magnitude below the conservative risk based action levels:
  - All Mercury results were non-detect with the detection limit 4 orders of magnitude below the most conservative (residential) risk based action level
  - Approximately 40 percent of the Total PCB results were non-detect and detected values were 2 to 3 orders of magnitude below the most conservative (residential) risk based action level
  - All 2,3,7,8-TCDD results were non-detect or 3 to 5 orders of magnitude below the most conservative (residential) risk based action level
- For all COPCs, no statistically significant differences (t-test comparison) were found between air concentrations measured during dredging and concentrations measured prior to dredging.

Conclusions and Recommendations

An extensive amount of data has been collected to characterize air quality during the RM 10.9 dredging operations. These data support the finding that chemicals associated with the dredged sediment have not impacted air quality in the park adjacent to the Removal Area.

Given these findings, CH2M HILL recommends that the CPG request EPA-approval to discontinue all 24-hour composite COPC sampling and reduce the real-time monitoring to two downwind locations (in the park) during capping operations. Before the start of capping operations each morning, the two real-time monitoring stations will be calibrated and positioned adjacent to the area being capped. Dust will be

monitored at both stations and H_2S will be monitored at one station. The monitoring equipment will be shut down and brought back to the CPG field warehouse upon completion of the capping operations each day. A VOC monitor will also be kept on-hand should CPG/EPA receive an odor complaint in/near Riverside Park and for other potential on-site odor investigations.

Table 1. RM 10.9 Air Concentration Data: Pre-Dredge Data

Station ID	Sample Collection Start Date	COPC	Air Concentration* (ug/m3)	Qualifier	Air Indicator Criteria (ug/m3)	Exceedance of Air Indicator Criteria	Magnitude Below Air Indicator Criteria
PMS-1	7/30/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	7/30/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	7/31/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	7/31/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	7/31/2013	PCB	8.3E-04	J AP	1.1E-01	no	7.5E-03
PMS-1	7/30/2013	PCB	8.6E-04	J AP	1.1E-01	no	7.8E-03
PMS-2	7/31/2013	PCB	1.0E-03	J AP	1.1E-01	no	9.4E-03
IRS-1	7/30/2013	PCB	1.3E-03	J AP	1.1E-01	no	1.2E-02
PMS-1	7/30/2013	TCDD	3.0E-09	Q J	2.4E-05	no	1.3E-04
PMS-1	7/31/2013	TCDD	4.4E-09	Q J	2.4E-05	no	1.8E-04
IRS-1	7/31/2013	TCDD	6.6E-09	Q J	2.4E-05	no	2.7E-04
PMS-2	7/31/2013	TCDD	7.2E-09	Q J	2.4E-05	no	3.0E-04

Notes: *Unvalidated Data

Key: AP = Altered pattern

J = Estimated result. Result is less than the reporting limit.

ND = Not detected above the (Method Detection Limit)

PCB = Polychlorinated biphenyl

Q = Estimated maximum possible concentration (EMPC).

TCDD = 2,3,7,8-Tetrachlorodibenzo-p-Dioxin

ug/m^3 = microgram per cubic meter

Table 2a. RM 10.9 Air Concentration Data: Mercury During Dredging

Station ID	Sample Collection Start Date	COPC	Air Concentration* (ug/m3)	Qualifier	Air Indicator Criteria (ug/m3)	Exceedance of Air Indicator Criteria	Magnitude Below Air Indicator Criteria
PMS-1	8/2/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/2/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/2/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/5/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/5/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/5/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/5/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/9/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/9/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/9/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/9/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/12/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/12/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/12/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/12/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/13/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/13/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/13/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/13/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/14/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/14/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/14/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/14/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/19/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/19/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/19/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/19/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/26/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	8/26/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/26/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/26/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	8/29/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04

PMS-2	8/29/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	8/29/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	8/29/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	9/20/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	9/20/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	9/20/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	9/20/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	9/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	9/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	9/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	9/21/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	9/22/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	9/22/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	9/22/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	9/22/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-2	10/1/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-1	10/1/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
PMS-3	10/1/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04
IRS-1	10/1/2013	Mercury	ND (4.2E-04)		2.4E+00	no	1.8E-04

Notes: *Unvalidated Data

Key: ND = Not detected above the (Method Detection Limit)
PCB = Polychlorinated biphenyl
ug/m^3 = microgram per cubic meter

Table 2b. RM 10.9 Air Concentration Data: Total PCBs During Dredging

Station ID	Sample Collection Start Date	COPC	Air Concentration* (ug/m3)	Qualifier	Air Indicator Criteria (ug/m3)	Exceedance of Air Indicator Criteria	Magnitude Below Air Indicator Criteria
PMS-3	9/23/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-2	9/23/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-3	8/3/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-1	8/3/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-2	8/5/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-3	8/5/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-2	8/9/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-1	8/9/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-3	8/9/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
IRS-1	8/9/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-1	8/13/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-3	8/13/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
IRS-1	8/13/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-2	8/14/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-3	8/19/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-2	8/20/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-3	8/20/2013	PCB	ND (8.6E-04)		1.1E-01	no	7.8E-03
PMS-2	10/1/2013	PCB	2.5E-03	J AP	1.1E-01	no	2.2E-02
PMS-1	9/19/2013	PCB	1.5E-03	J AP	1.1E-01	no	1.4E-02
IRS-1	8/27/2013	PCB	1.4E-03	J AP	1.1E-01	no	1.2E-02
IRS-1	8/21/2013	PCB	1.3E-03	J AP	1.1E-01	no	1.2E-02
IRS-1	8/20/2013	PCB	1.3E-03	J AP	1.1E-01	no	1.2E-02
PMS-1	9/21/2013	PCB	1.1E-03	J AP	1.1E-01	no	9.7E-03
PMS-1	8/27/2013	PCB	1.0E-03	J AP	1.1E-01	no	9.5E-03
PMS-2	8/2/2013	PCB	1.0E-03	J AP	1.1E-01	no	9.5E-03
PMS-2	8/12/2013	PCB	1.0E-03	J AP	1.1E-01	no	9.4E-03
IRS-1	10/1/2013	PCB	1.0E-03	J AP	1.1E-01	no	9.3E-03
PMS-3	8/12/2013	PCB	9.8E-04	J AP	1.1E-01	no	8.9E-03
PMS-1	8/20/2013	PCB	9.7E-04	J AP	1.1E-01	no	8.8E-03
PMS-3	8/27/2013	PCB	9.5E-04	J AP	1.1E-01	no	8.6E-03
PMS-1	8/12/2013	PCB	9.2E-04	J AP	1.1E-01	no	8.4E-03
PMS-1	10/1/2013	PCB	9.0E-04	J AP	1.1E-01	no	8.2E-03
PMS-2	8/21/2013	PCB	8.7E-04	J AP	1.1E-01	no	7.9E-03
PMS-1	9/20/2013	PCB	8.6E-04	J AP	1.1E-01	no	7.9E-03
PMS-1	8/21/2013	PCB	8.6E-04	J AP	1.1E-01	no	7.8E-03
PMS-2	8/27/2013	PCB	8.3E-04	J AP	1.1E-01	no	7.5E-03

IRS-1	8/30/2013	PCB	8.2E-04	J AP	1.1E-01	no	7.5E-03
PMS-1	8/30/2013	PCB	7.5E-04	J AP	1.1E-01	no	6.8E-03
PMS-3	8/30/2013	PCB	7.0E-04	J AP	1.1E-01	no	6.4E-03
PMS-3	8/21/2013	PCB	6.8E-04	J AP	1.1E-01	no	6.1E-03
PMS-3	10/1/2013	PCB	6.5E-04	J AP	1.1E-01	no	5.9E-03
IRS-1	8/2/2013	PCB	6.3E-04	J AP	1.1E-01	no	5.7E-03
PMS-1	9/23/2013	PCB	6.3E-04	J AP	1.1E-01	no	5.7E-03
PMS-1	8/19/2013	PCB	6.3E-04	J AP	1.1E-01	no	5.7E-03
PMS-2	8/30/2013	PCB	6.2E-04	J AP	1.1E-01	no	5.7E-03

Notes: *Unvalidated Data

Key: AP = Altered pattern

J = Estimated result. Result is less than the reporting limit.

ND = Not detected above the (Method Detection Limit)

PCB = Polychlorinated biphenyl

ug/m^3 = microgram per cubic meter

Table 2c. RM 10.9 Air Concentration Data: TCDD During Dredging

Station ID	Sample Collection Start Date	COPC	Air Concentration* (ug/m3)	Qualifier	Air Indicator Criteria (ug/m3)	Exceedance of Air Indicator Criteria	Magnitude Below Air Indicator Criteria
PMS-2	9/20/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
PMS-3	9/20/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
PMS-2	9/21/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
IRS-1	9/21/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
PMS-3	8/9/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
PMS-2	8/13/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
PMS-2	8/23/2013	TCDD	ND (2.0E-10)		2.4E-05	no	8.3E-06
IRS-1	10/2/2013	TCDD	9.2E-08	Q J	2.4E-05	no	3.8E-03
IRS-1	9/20/2013	TCDD	2.9E-08	Q	2.4E-05	no	1.2E-03
PMS-1	10/2/2013	TCDD	1.9E-08	Q J	2.4E-05	no	8.0E-04
PMS-1	8/28/2013	TCDD	1.8E-08	Q J	2.4E-05	no	7.5E-04
PMS-1	9/3/2013	TCDD	1.4E-08	Q J	2.4E-05	no	6.0E-04
IRS-1	8/12/2013	TCDD	1.3E-08	Q J	2.4E-05	no	5.4E-04
IRS-1	8/19/2013	TCDD	1.2E-08	Q J	2.4E-05	no	5.2E-04
PMS-2	9/24/2013	TCDD	1.2E-08	Q J	2.4E-05	no	5.2E-04
PMS-1	8/23/2013	TCDD	1.2E-08	Q J	2.4E-05	no	5.0E-04
IRS-1	9/3/2013	TCDD	1.0E-08	Q J	2.4E-05	no	4.3E-04
PMS-2	10/2/2013	TCDD	1.0E-08	J	2.4E-05	no	4.2E-04
PMS-1	8/19/2013	TCDD	9.8E-09	Q J	2.4E-05	no	4.1E-04
IRS-1	9/24/2013	TCDD	9.0E-09	Q J	2.4E-05	no	3.7E-04
PMS-1	8/5/2013	TCDD	8.5E-09	Q J	2.4E-05	no	3.5E-04
PMS-3	9/24/2013	TCDD	8.0E-09	Q J	2.4E-05	no	3.3E-04
PMS-1	8/15/2013	TCDD	7.6E-09	Q J	2.4E-05	no	3.2E-04
PMS-1	8/23/2013	TCDD	6.3E-09	Q J	2.4E-05	no	2.6E-04
PMS-3	10/2/2013	TCDD	6.2E-09	Q J	2.4E-05	no	2.6E-04
IRS-1	8/23/2013	TCDD	6.2E-09	Q J	2.4E-05	no	2.6E-04
PMS-3	8/23/2013	TCDD	5.8E-09	Q J	2.4E-05	no	2.4E-04
PMS-1	9/21/2013	TCDD	5.5E-09	Q J	2.4E-05	no	2.3E-04
PMS-1	8/21/2013	TCDD	5.1E-09	Q J	2.4E-05	no	2.1E-04
PMS-1	8/9/2013	TCDD	4.9E-09	Q J	2.4E-05	no	2.0E-04
PMS-2	9/3/2013	TCDD	4.6E-09	Q J	2.4E-05	no	1.9E-04
PMS-3	8/15/2013	TCDD	4.5E-09	Q J	2.4E-05	no	1.9E-04
PMS-3	8/21/2013	TCDD	4.3E-09	Q J	2.4E-05	no	1.8E-04
PMS-3	8/12/2013	TCDD	4.0E-09	Q J	2.4E-05	no	1.7E-04
PMS-1	9/20/2013	TCDD	3.7E-09	Q J	2.4E-05	no	1.6E-04
PMS-3	9/3/2013	TCDD	3.7E-09	Q J	2.4E-05	no	1.6E-04

IRS-1	8/5/2013	TCDD	3.7E-09	Q J	2.4E-05	no	1.5E-04
IRS-1	8/28/2013	TCDD	3.7E-09	Q J	2.4E-05	no	1.5E-04
PMS-3	8/19/2013	TCDD	3.4E-09	Q J	2.4E-05	no	1.4E-04
PMS-2	8/12/2013	TCDD	3.3E-09	Q J	2.4E-05	no	1.4E-04
PMS-2	8/9/2013	TCDD	2.5E-09	Q J	2.4E-05	no	1.1E-04
PMS-1	8/12/2013	TCDD	2.5E-09	Q J	2.4E-05	no	1.0E-04
IRS-1	8/15/2013	TCDD	2.3E-09	Q J	2.4E-05	no	9.6E-05
PMS-2	8/15/2013	TCDD	2.3E-09	Q J	2.4E-05	no	9.5E-05
PMS-2	8/2/2013	TCDD	2.0E-09	Q J	2.4E-05	no	8.4E-05
PMS-2	8/19/2013	TCDD	1.8E-09	Q J	2.4E-05	no	7.7E-05
PMS-2	8/21/2013	TCDD	1.6E-09	Q J	2.4E-05	no	6.8E-05
PMS-1	9/24/2013	TCDD	1.3E-09	Q J	2.4E-05	no	5.4E-05
PMS-3	8/13/2013	TCDD	1.3E-09	Q J	2.4E-05	no	5.4E-05
PMS-3	8/3/2013	TCDD	1.1E-09	Q J	2.4E-05	no	4.5E-05
PMS-1	8/13/2013	TCDD	8.3E-10	Q J	2.4E-05	no	3.5E-05
PMS-3	9/21/2013	TCDD	7.1E-10	J AP	2.4E-05	no	3.0E-05
PMS-3	8/5/2013	TCDD	6.4E-10	Q J	2.4E-05	no	2.7E-05
PMS-3	8/28/2013	TCDD	5.9E-10	Q J	2.4E-05	no	2.5E-05

Notes: *Unvalidated Data

Key: J = Estimated result. Result is less than the reporting limit.
ND = Not detected above the (Method Detection Limit)
Q = Estimated maximum possible concentration (EMPC).
TCDD = 2,3,7,8-Tetrachlorodibenzo-p-Dioxin
ug/m^3 = microgram per cubic meter

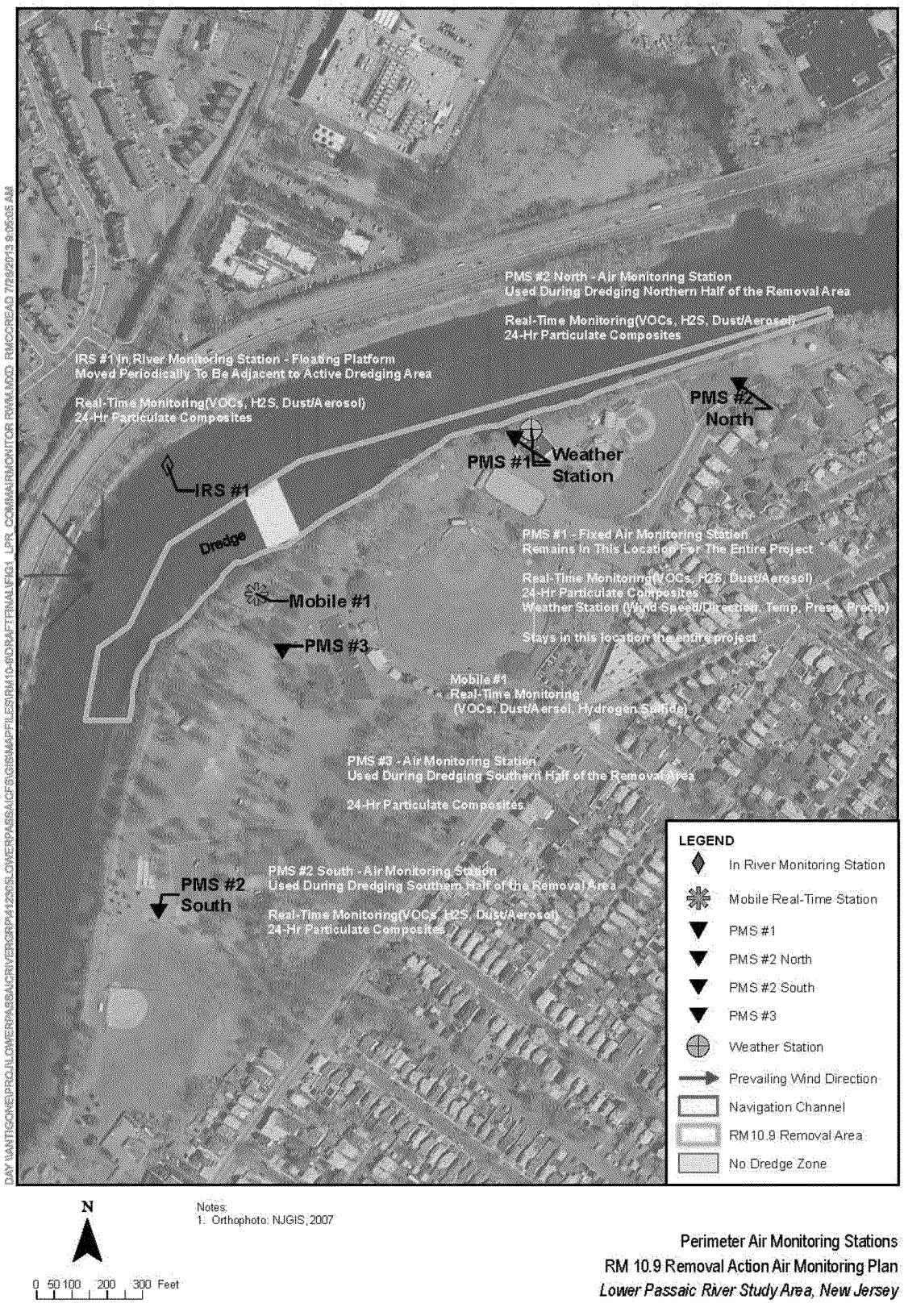

Figure 1. Perimeter Air Monitoring Stations